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Bohannon et al.

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(54) **CLEANING DEVICE FOR GOLF EQUIPMENT**

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(51) **Int. Cl.**

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A46B 9/06	(2006.01)
A47L 13/12	(2006.01)
A47L 13/02	(2006.01)
A47L 13/022	(2006.01)
A47L 13/06	(2006.01)
A47L 13/08	(2006.01)
A47L 23/04	(2006.01)

(52) **U.S. Cl.** **15/113**; 15/111; 15/160; 15/161; 15/176.1; 15/176.6; 15/236.01; 15/237; 15/DIG. 6; D4/118; D21/795; D32/42; D32/46; D32/47; D32/49

(58) **Field of Classification Search** 15/105, 15/111, 113, 176.1, 176.6, 236.01, 237, 236.05–236.09, 15/DIG. 6, 159.1, 160, 161, 197, 200, 207.2; D4/116, 118; D21/793, 795; D32/42, 46, D32/47, 49

See application file for complete search history.

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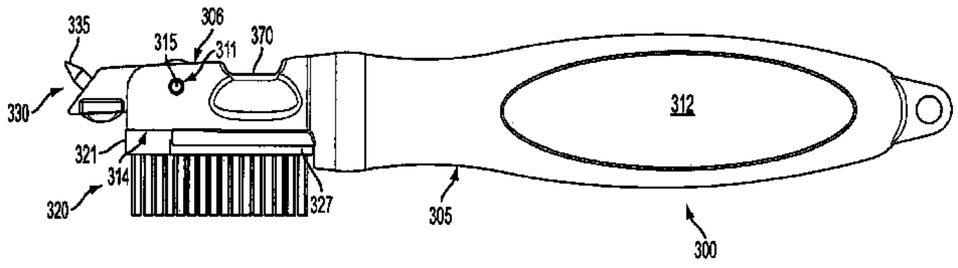
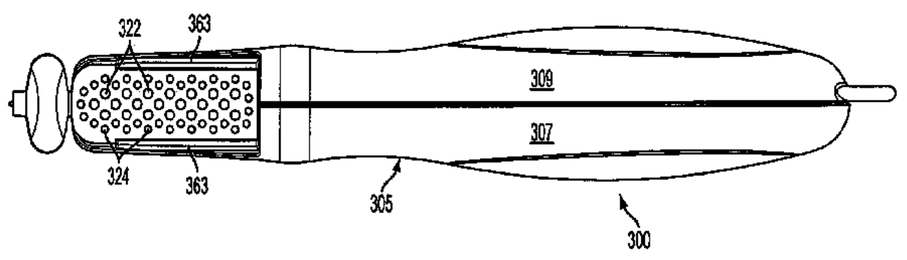
(74) *Attorney, Agent, or Firm*—Charter IP, LLC; Matthew J. Lattig

(57) **ABSTRACT**

A device for cleaning golf equipment such as golf clubs and golf shoe includes a handle, a brush head surface formed in an underside of the handle at a proximal end thereof, and a plurality of metal and plastic bristles extending downward from the brush head surface. The bristles are configured so that the plastic bristles are arranged around an outer circumference of the brush head surface to encircle the metal bristles extending from a central portion of the brush head surface.

12 Claims, 12 Drawing Sheets





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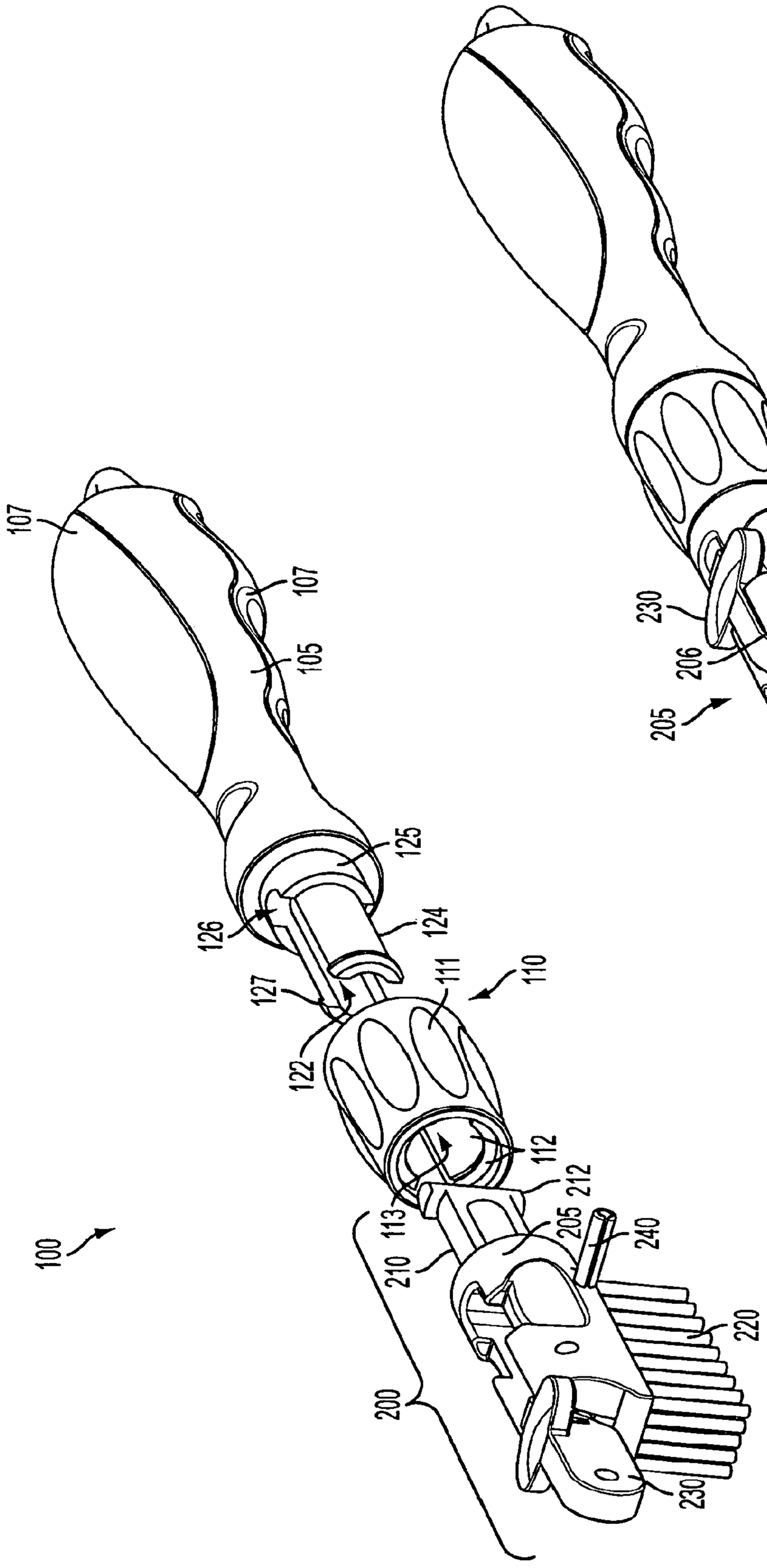
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FIG. 1A

FIG. 1F

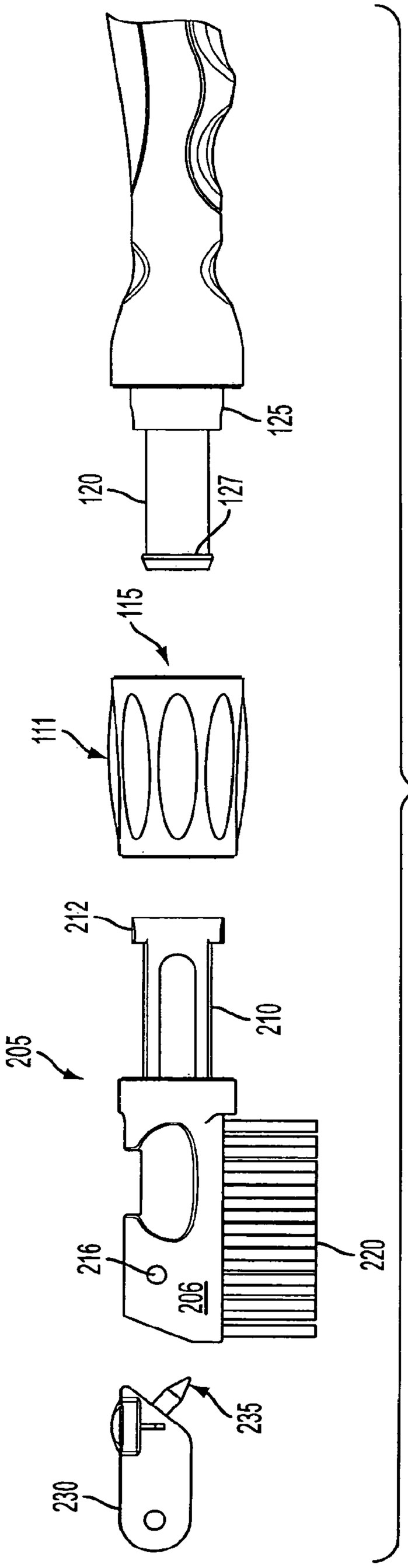
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FIG. 1B

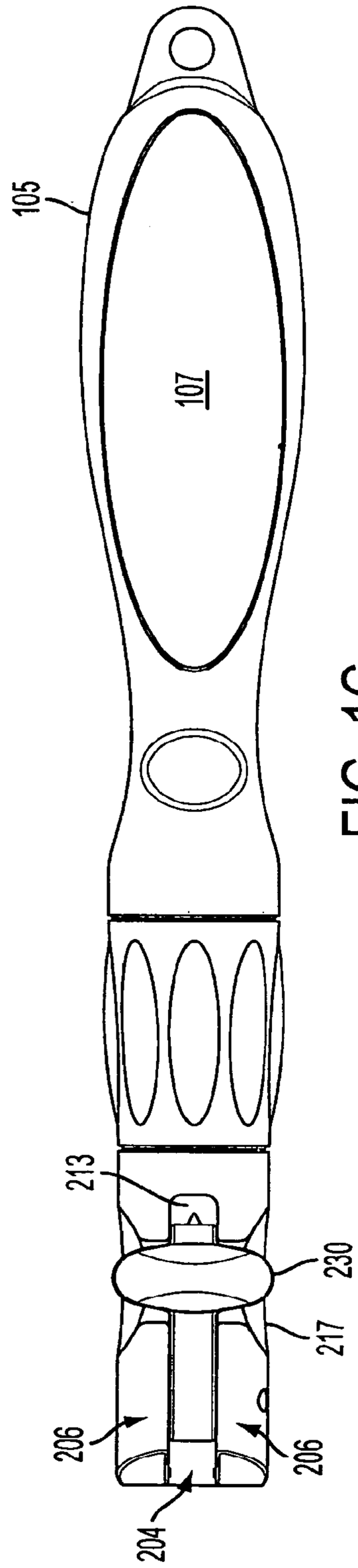
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FIG. 1C

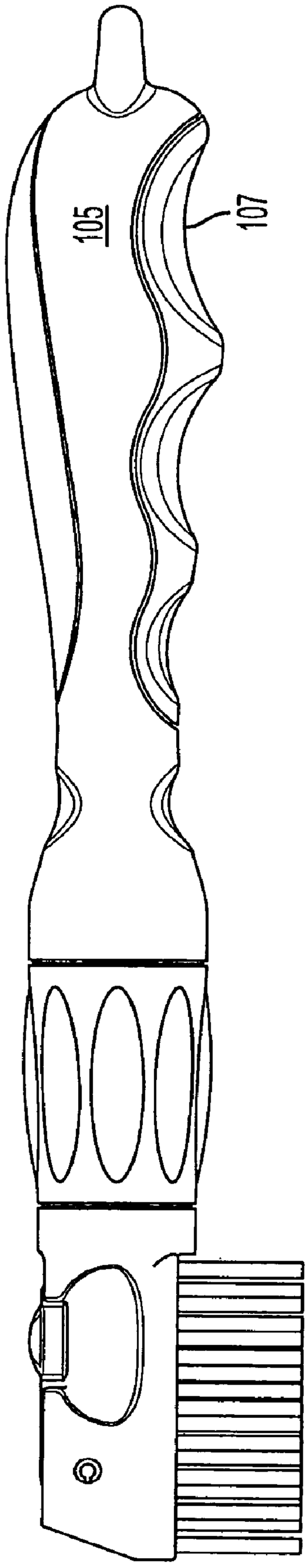

FIG. 1D

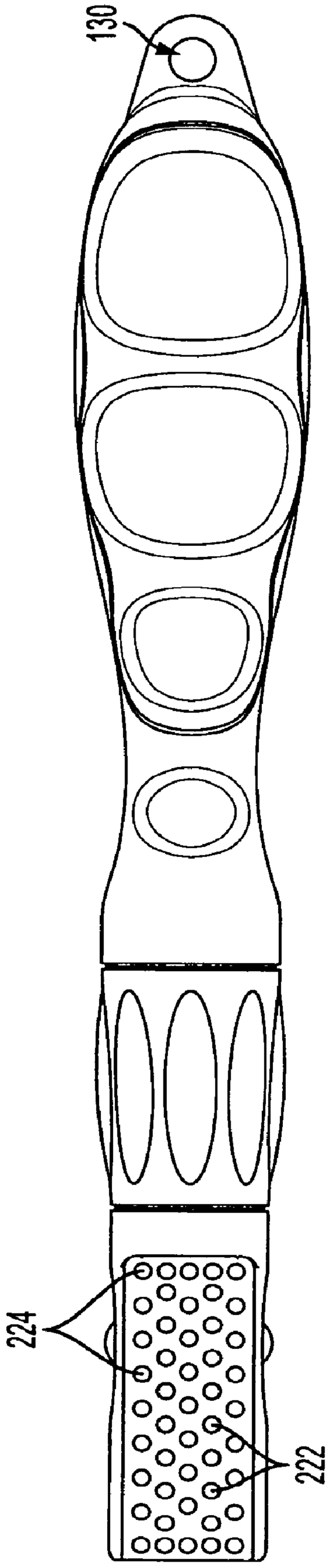

FIG. 1E

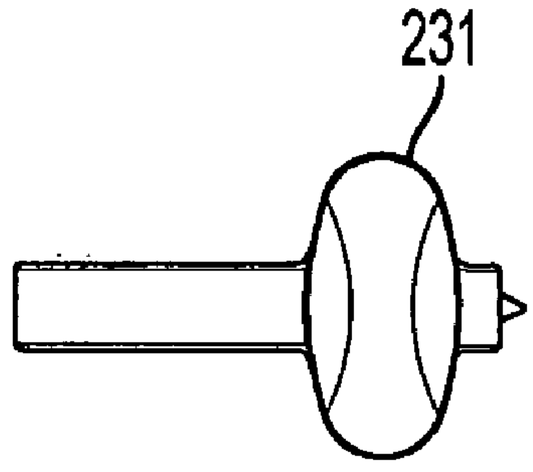

FIG. 2A

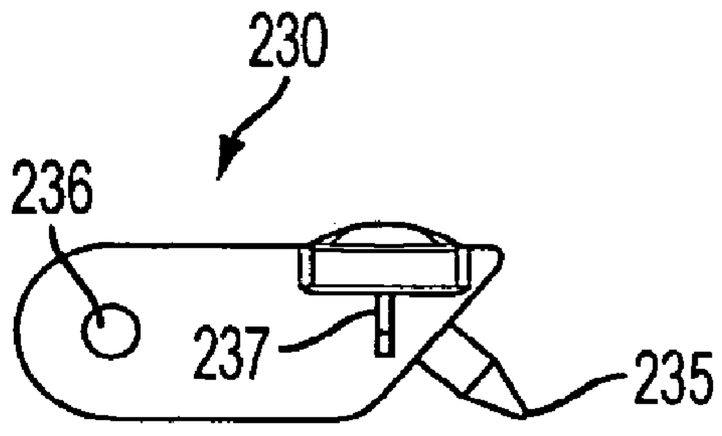

FIG. 2B

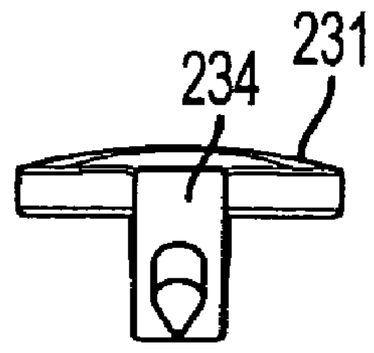

FIG. 2C

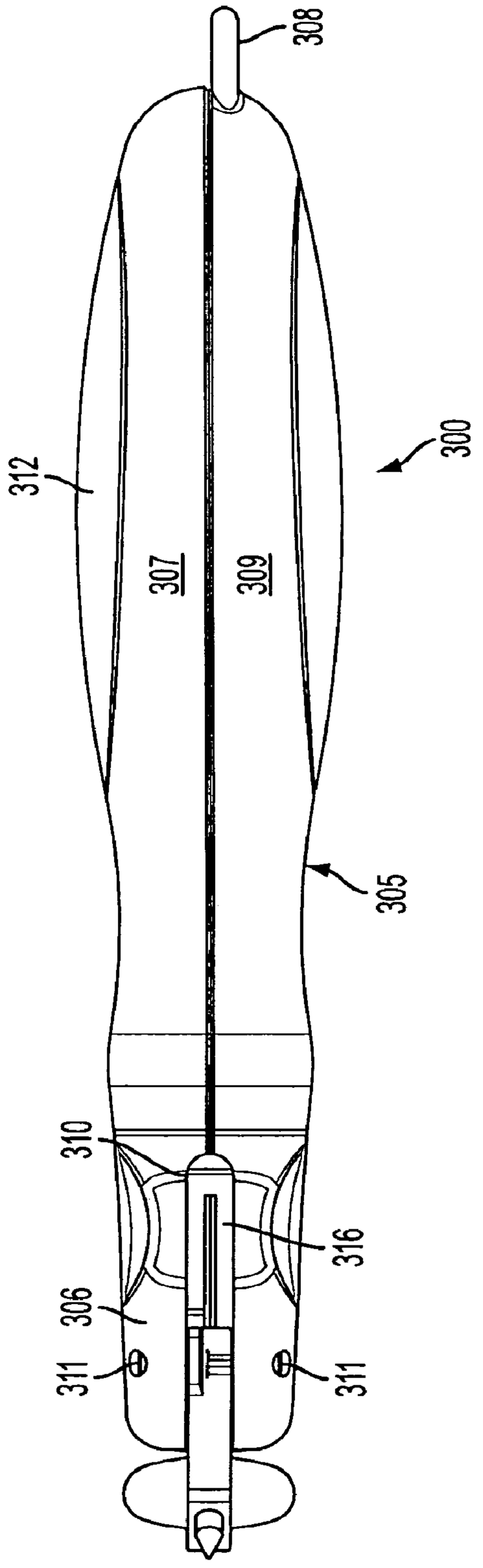
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FIG. 3A

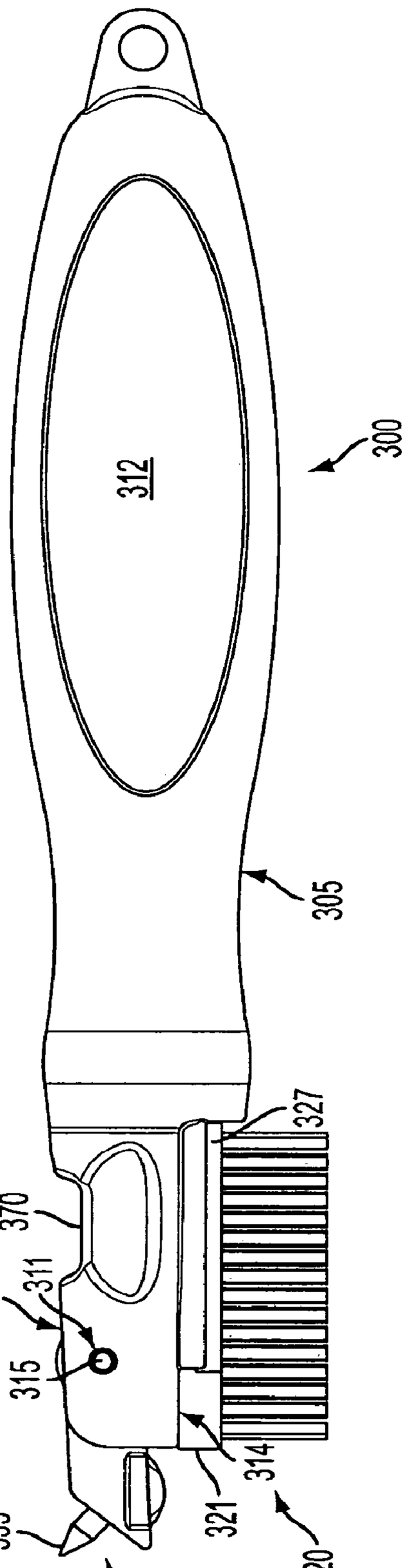
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FIG. 3B

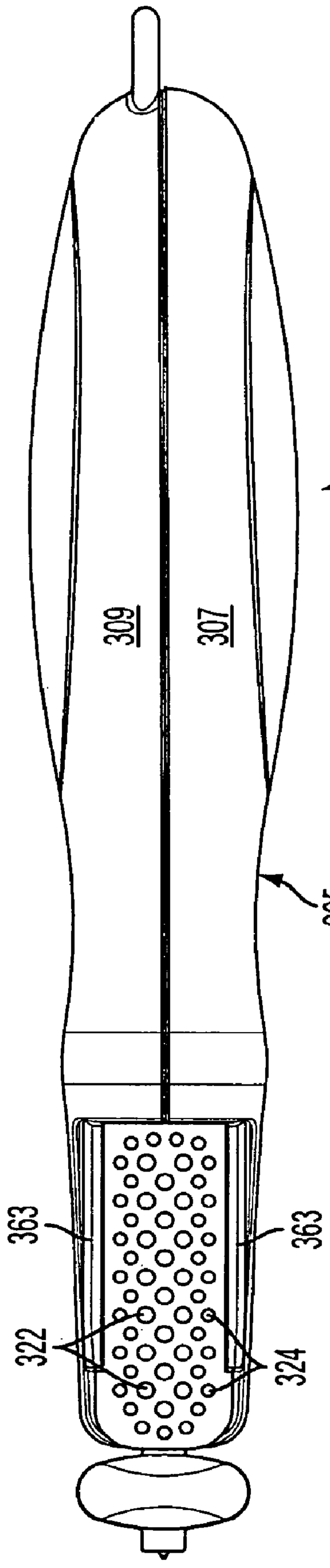

FIG. 3C

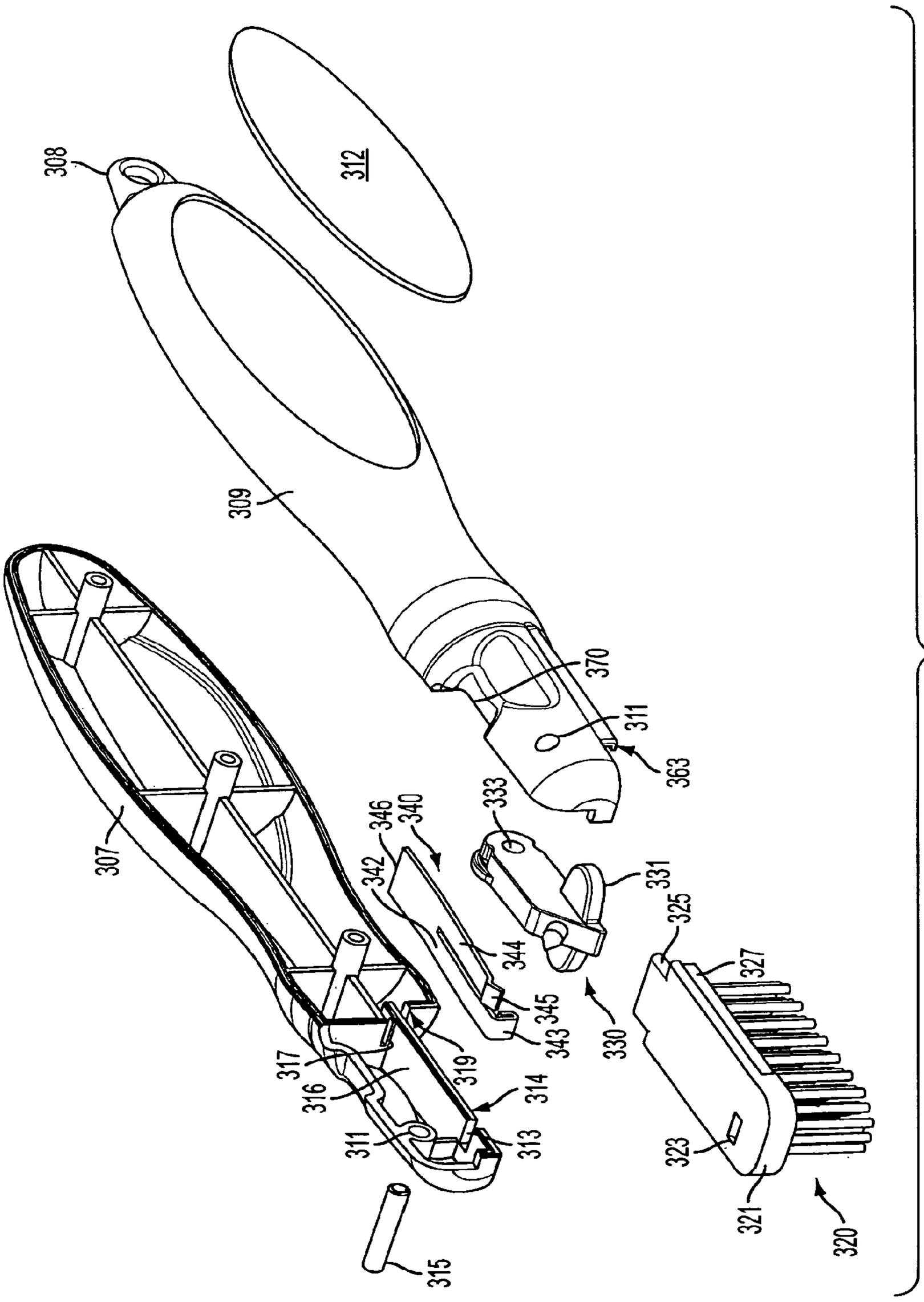
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FIG. 4

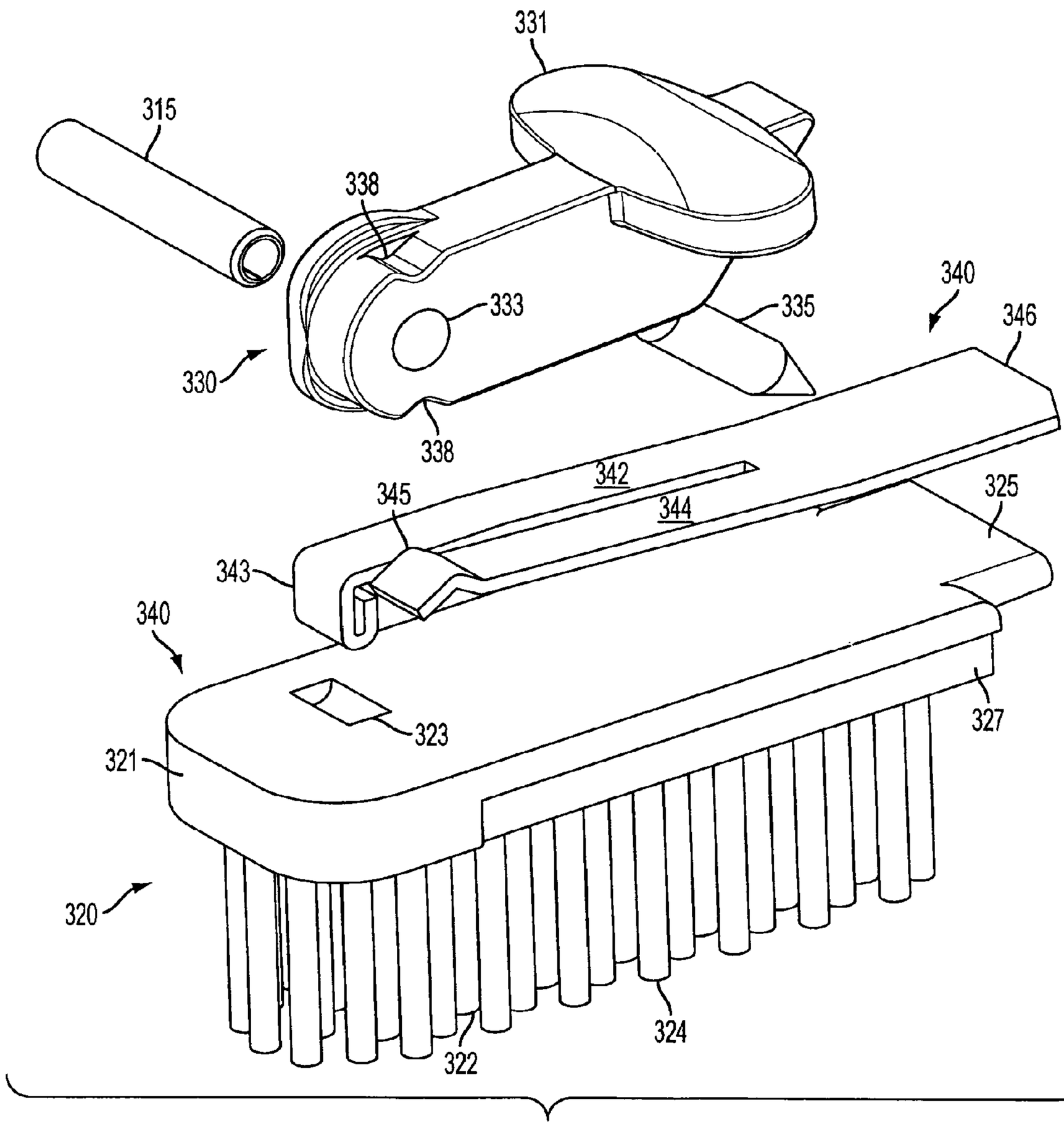
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FIG. 5

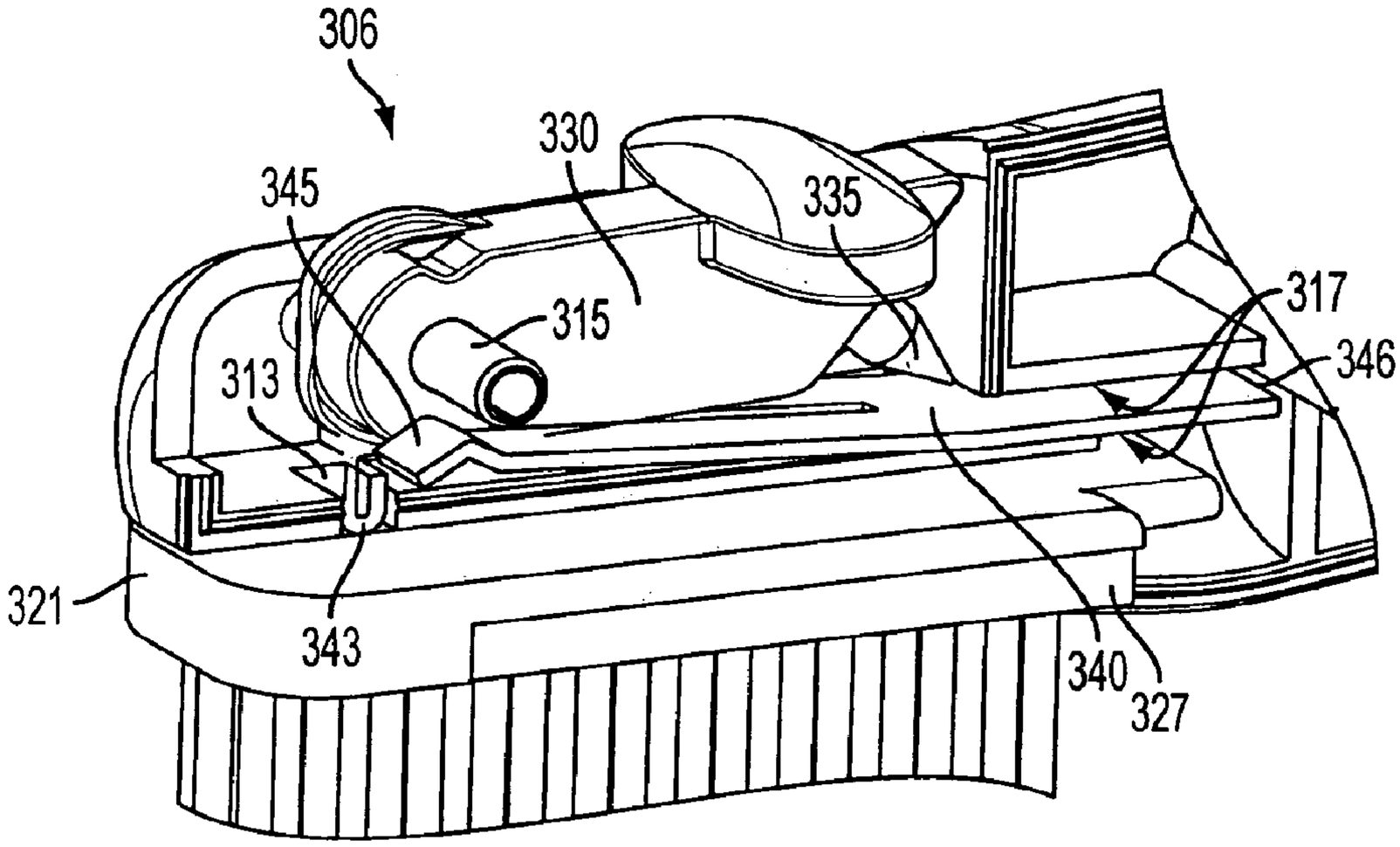
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FIG. 6A

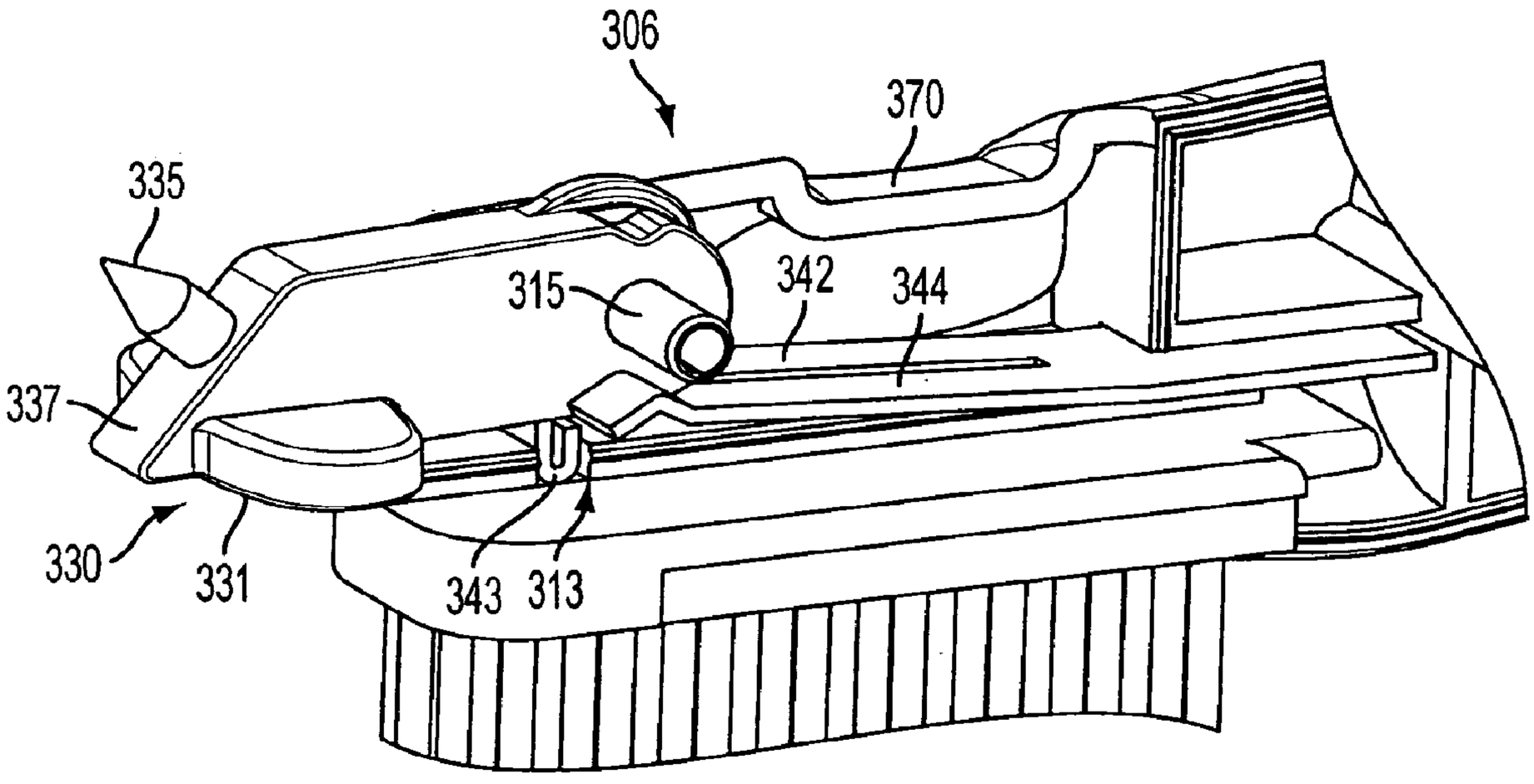
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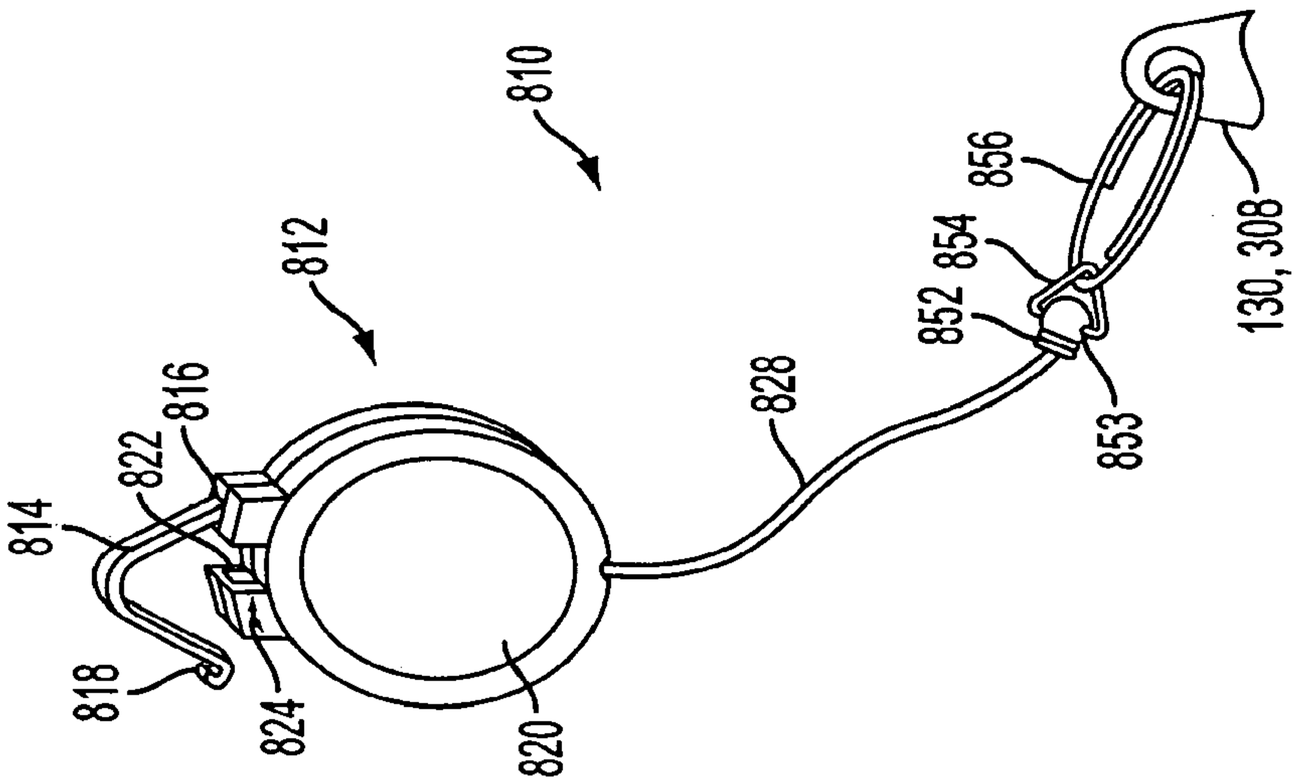
FIG. 6B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814
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820
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854
856
130, 308

FIG. 8

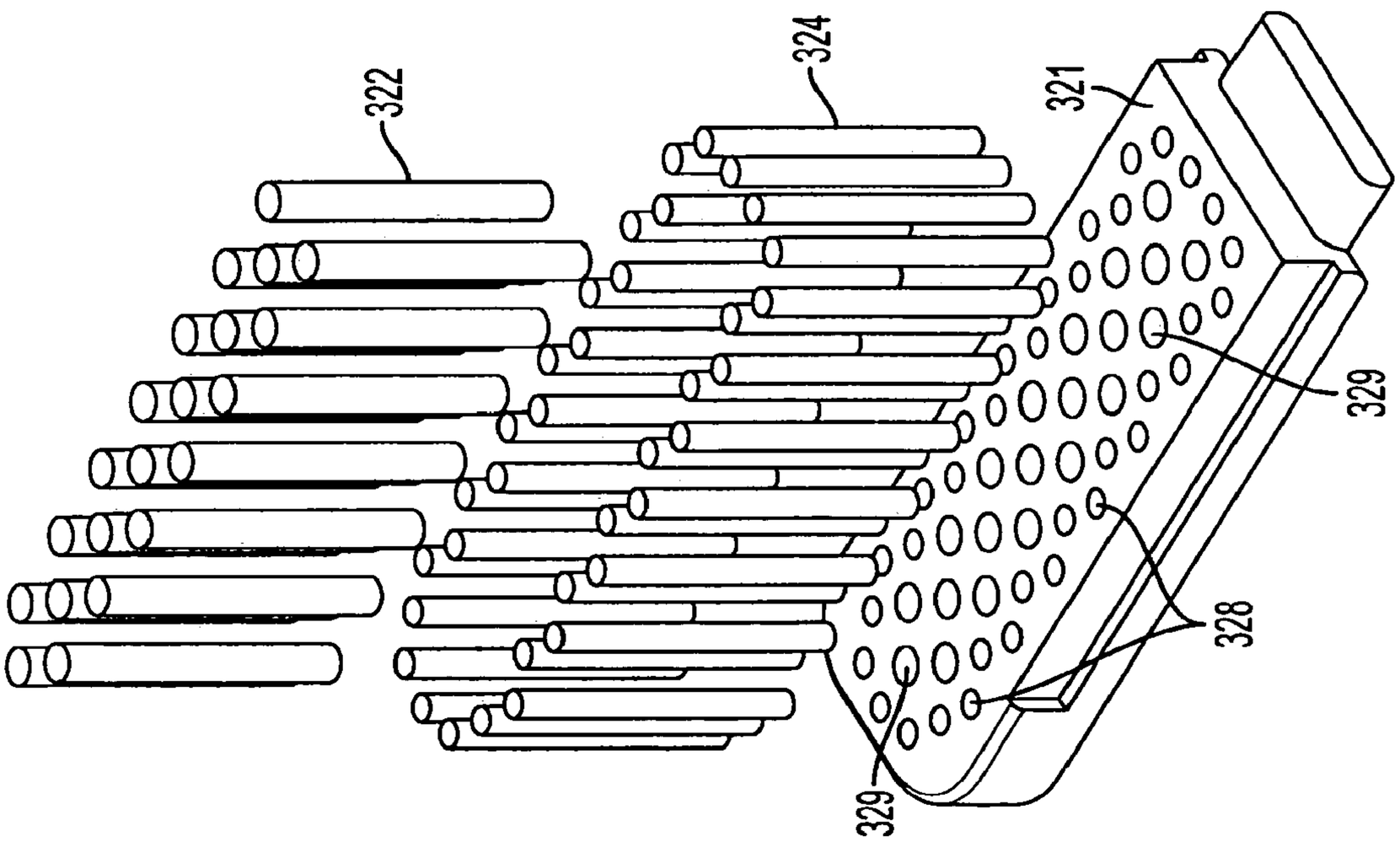
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FIG. 7

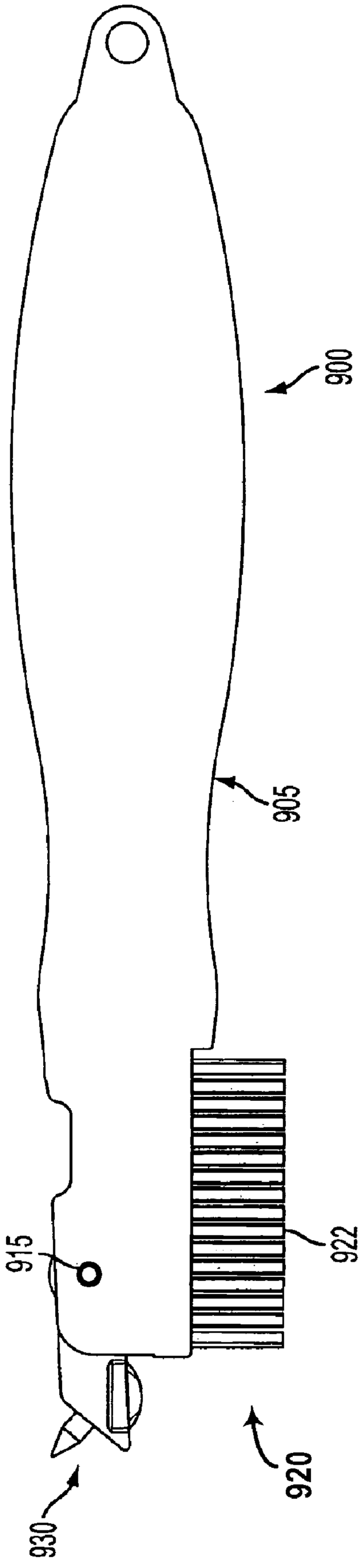

FIG. 9

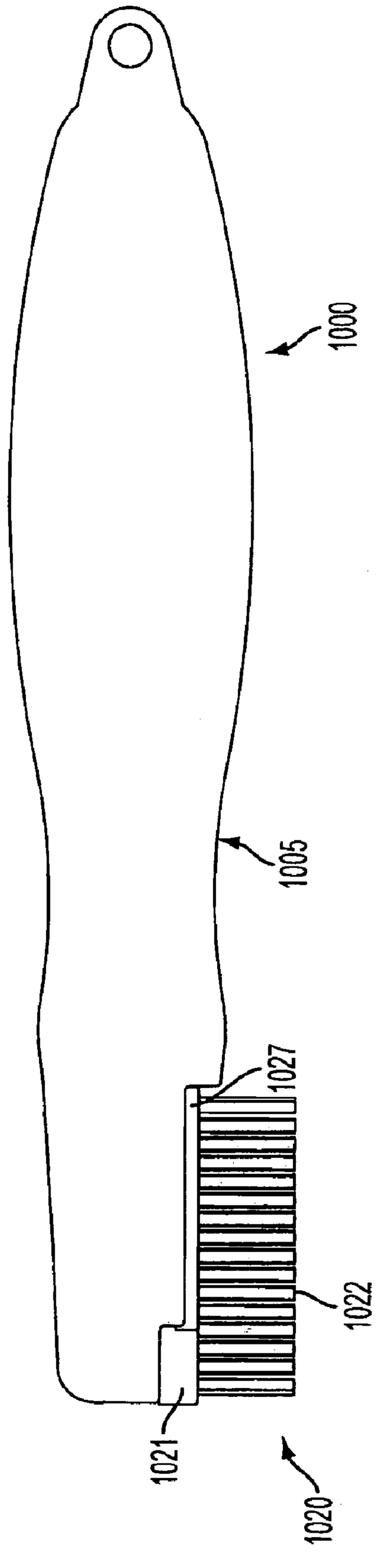

FIG. 10

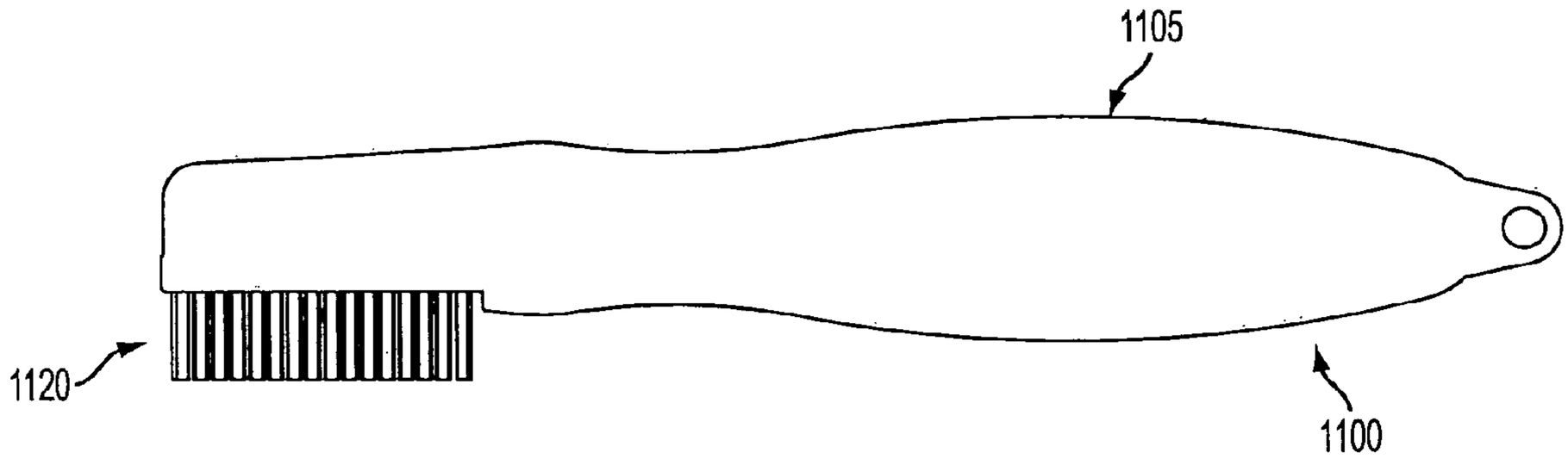

FIG. 11A

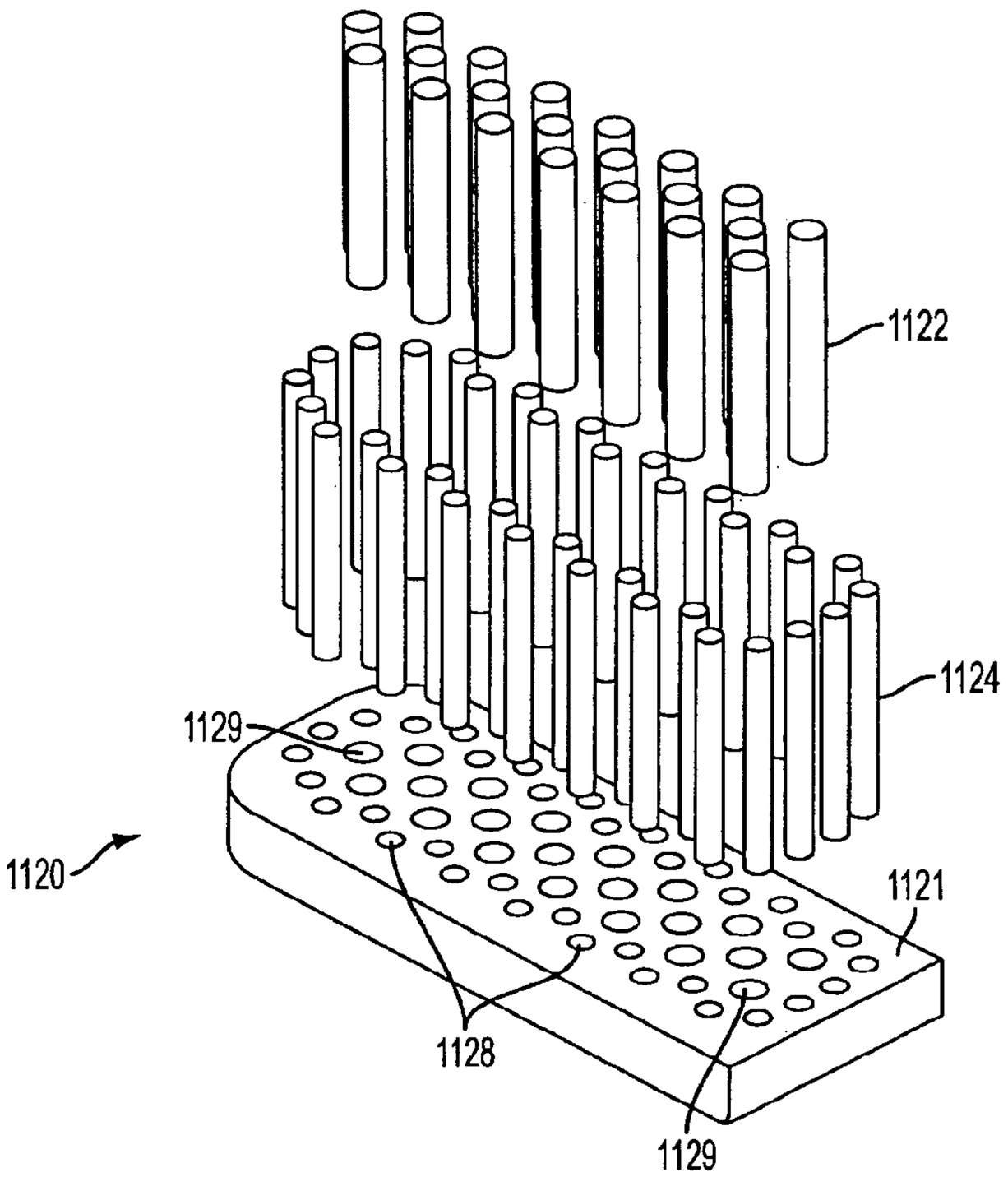

FIG. 11B

CLEANING DEVICE FOR GOLF EQUIPMENT

PRIORITY STATEMENT

This application is a continuation of and claims the benefit under 35 U.S.C. §120 to U.S. patent application Ser. No. 11/517,508, filed Sep. 8, 2006 to Bohannon, et al. and entitled "CLEANING DEVICE FOR GOLF EQUIPMENT", now U.S. Pat. No. 7,555,802, which claims the benefit of U.S. Provisional Application No. 60/716,088, filed Sep. 13, 2005. The entire contents of each application is hereby incorporated by reference herein.

BACKGROUND

1. Field

Example embodiments in general are directed to a device for cleaning golf equipment such as the heads and/or faces of golf clubs and/or soles of golf shoes.

2. Related Art

Golf club head cleaning devices typically characterized by a hand-held brush device having metal and/or plastic bristles at an end thereof for cleaning different types of clubs, e.g., faces of drivers/woods and/or faces of irons. Separate devices for cleaning debris or dirt from the grooves of club faces are also known, such as a metal spike device or nail with a point.

Certain combination golf club cleaning devices may include both a brush section and a groove cleaning fixture such as a spike or blade, each fixedly provided thereon. However, these conventional combination cleaning devices typically are cumbersome to the user, with the devices hooked on bags or carried in the pocket, where an exposed groove cleaner could injure the user or rip clothing. Further, the brush bristles and groove cleaner implements typically are not replaceable but are fixed as part of the contiguous cleaning device. As such, these devices must be thrown away once the groove cleaner dulls and/or once the bristles wear down to a point at which the brush becomes ineffective for cleaning a club head.

SUMMARY

An example embodiment of the present invention is directed to a device for cleaning golf equipment. The device includes a handle, a brush head surface formed in an underside of the handle at a proximal end thereof, and a plurality of metal and plastic bristles extending downward from the brush head surface. The bristles are configured so that the plastic bristles are arranged around an outer circumference of the brush head surface to encircle the metal bristles extending from a central portion of the brush head surface.

Another example embodiment is directed to a device for cleaning golf equipment that includes a handle having a proximal and distal end, a scraper pivotally attached to the handle proximate end on a top surface thereof by a pivot pin that is transverse thereto and connected to the handle, and a plurality of metal and plastic bristles extending downward from a bottom surface of the handle at the proximal end. The bristles are configured so that the plastic bristles are arranged around an outer circumference of the bottom surface to encircle the metal bristles extending from a central portion of the bottom surface of the handle.

BRIEF DESCRIPTION OF THE DRAWINGS

Example embodiments will become more fully understood from the detailed description given herein below and the accompanying drawings, wherein like elements are represented by like reference numerals, which are given by way of illustration only and thus are not limitative of the example embodiments herein.

FIG. **1**A is a partial exploded perspective view of a cleaning device in accordance with an example embodiment.

FIG. **1**B is a partial exploded perspective view of the cleaning device of FIG. **1**A.

FIG. **1**C is a top view of the cleaning device of FIG. **1**A.

FIG. **1**D is a side view of the cleaning device of FIG. **1**A.

FIG. **1**E is a bottom view of the cleaning device of FIG. **1**A.

FIG. **1**F is a perspective view of the cleaning device of FIG. **1**A to illustrate the scraper block.

FIG. **2**A is a top view of the scraper block in FIG. **1**A.

FIG. **2**B is a side view of the scraper block in FIG. **1**A.

FIG. **2**C is a front view of the scraper block in FIG. **1**A.

FIG. **3**A is a top view of a cleaning device iii accordance with another example embodiment.

FIG. **3**B is a side view of the cleaning device of FIG. **3**A.

FIG. **3**C is a bottom view of the cleaning device of FIG. **3**A.

FIG. **4** is a partial exploded perspective view of a cleaning device shown in FIGS. **3**A-**3**C.

FIG. **5** is an enlarged perspective view of a brush assembly, a tension element and a scraper block in the cleaning device of FIGS. **3**A-**3**C.

FIG. **6**A is a perspective, enlarged cut-away view of a portion of the brush assembly and scraper block at the proximal end of the handle to illustrate the scraper block in a secured inward position.

FIG. **6**B is a perspective, enlarged cut-away view of a portion of the brush assembly and scraper block at the proximal end of the handle to illustrate the scraper block in a fully-extended outward position.

FIG. **7** is an exploded view of a portion of the brush assembly to illustrate the brush head, metal bristles and plastic bristles.

FIG. **8** illustrates an example retractor mechanism usable with the example devices for cleaning golf equipment.

FIG. **9** is a side view of a cleaning device in accordance with another example embodiment.

FIG. **10** is a side view of a cleaning device in accordance with another example embodiment.

FIG. **11**A is a side view of a cleaning device in accordance with another example embodiment.

FIG. **11**B is an exploded view of a portion of the device in FIG. **11**A to illustrate the brush head, metal bristles and plastic bristles.

DETAILED DESCRIPTION

FIG. **1**A is a partial exploded perspective view of a cleaning device in accordance with an example embodiment of the present invention, with FIGS. **1**B-**1**F showing a partial exploded side view, top view, side view, bottom view and perspective view of the cleaning device of FIG. **1**A. FIGS. **1**A-**1**F should be referred to for the following discussion.

The cleaning device **100** provides a mechanism for cleaning the heads and/or faces of golf clubs and/or for cleaning other golf equipment such as golf shoes. The device **100** may hang from a golf bag via a standard retractor mechanism, in which a retractable cord or tether is attached to an eyelet **130** at a distal end of a handle **105**. The retractor mechanism is described in more detail below.

As shown in FIGS. **1**A-**1**E, the cleaning device **100** may include the handle **105**, a nut **110**, and a removable cleaning subassembly **200**. The subassembly **200** may include a brush head **205**, a brush **220** and a scraper block **230**. The brush **220**

may include a plurality of bristles extending downward from a first surface of the brush head **205**, shown generally at **207**. The scraper block **230** may also be pivotally connected to a second surface **209** of the brush head **205** so that the scraper block **230** is displaceable outward from the second surface **209** of the brush head **205** to expose a scraper or groove cleaner **235**. As will be explained below, the groove cleaner **235** may be shaped so as to efficiently remove debris from club face grooves.

The retractor mechanism used to attach the device **100** to an external article such as a golf bag may be any off-the shelf product. As such, the example cleaning devices described herein or not limited to a particular type of retractor mechanism or retractable reel assembly as are known in the art. An example retractable reel assembly can include a carabineer connected to a top end of a retractable reel, with a cord, chain or tether pulled from the retractable reel being fixedly attached to the eyelet **130** of handle **105** directly (or to an eyelet **308** of a device **300** in a later-described embodiment). Alternatively, the free cord/chain/tether end which is pulled from the retractor mechanism may be connected directly to a ring that is connected to eyelet **130**, or affixed to a lock element such as a ball or clasp which is connected to the ring, with the ring in turn connected to the eyelet **130**. Example retractable reels of this type that could be used in conjunction with device **100** include several variations of retractable reels made by Key-Bak®, Inc., such as the Securit 488B, and/or several variations of retractable reels made by United Mercantile Exchange (UMX®, Inc.) which include a carabineer and ring for attaching the retractable reel assembly between two items.

In use, a user may grab the device **100**, and pull it away from the external article (e.g., golf bag) to overcome the friction or retraction force applied by a helical spring or coil within the selected retractor mechanism, as is known in the art. The user cleans golf clubs and/or golf shoes, and then releases device **100**. Device **100**, under a retraction force applied on the cord, chain or tether by the helical spring or coil within the retractable reel assembly, snaps back to the bag due to the spring action imparted by the interior spring or coil.

FIG. **8** illustrates another example retractor mechanism usable with the example devices for cleaning golf equipment described herein, it being understood that FIG. **8** is provided only for illustrative purposes; the retractor mechanisms as described above may be used with device **100**.

In FIG. **8**, another example retractor mechanism **810** includes a tether housing **812** having a main body portion **820**. Instead of using a carabineer, a fastening arm **814** is used to connect mechanism **810** to an external article. The fastening arm **814** has a first end **816** fixed to the main body portion **820** and a second hook end **818**.

In use, the fastening arm **814** is able to capture an element (e.g., a ring) of an external article (e.g., a golf bag), neither of which are shown. To do so, as the arrows **824** indicate, a user presses the second end **818** of the fastening arm **814** away from a hook alcove **822** in which the second hook end **818** is normally retained and toward the first end **816** of the fastening arm **814**. With this, the hook end **818** will be disengaged from a hook (not shown) within the hook alcove **822**.

A user can then bend the fastening arm **814** to an open position as is shown in FIG. **8** to allow the second end **818** to pass through a ring of a golf bag, for example, to which the device **100** is to be attached. With a ring of a golf bag captured, the second end **818** of the flexible fastening arm **814** can be re-inserted into the hook alcove **822** and then released to allow the hook **818** to engage the hook (not shown) within alcove **822** to secure the retractor mechanism **810** to an external article.

A tether **828**, which may be a nylon cord or chain, for example, extends from the tether housing **812** as shown. The tether **828** has a first end retained in a spool (not shown) within the housing **812**. A second end of the tether **828** is fastened to a locking element **852**. For example, the second end of tether **828** is inserted through a top end of the element **852** and knotted so that it is fixed to the locking element **852**. The locking element **852** has a transverse hole **853** which receives a metal triangular clasp **854**. The clasp **854** is shown attached to ring **856** which in turn is connected to eyelet **130**. Thus, the second end of the tether **828** is fixedly fastened to a locking element **852**, which in turn is attached to ring **856** via clasp **854**. The ring **856** has an annular body portion which passes through eyelet **130** in the handle **105** of device **100**, thereby fixedly attaching the retractor mechanism **810** to device **100** (or device **300** in later embodiments).

The spool within housing **812** may be biased to retract the tether **828** from an extended position by a helical metal spring or coil, as is-known in the art. As previously described above regarding the retractors with carabineer and reel assembly, the user pulls device **100** away from the bag to overcome the friction or retraction force applied by the retractor mechanism **810**, cleans his golf equipment and then releases device **100**, which snaps back to the bag due to spring action imparted by the spring or coil within the housing **812**.

The handle **105**, nut **110** and/or components of the subassembly **200** may be made primarily from lightweight materials such as moldable plastic. In an example, one or more of the handle **105**, nut **110** and/or components of the subassembly **200** may be formed by an injection molding process from a high impact plastic, such as Acrylonitrile Butadiene Styrene (ABS), which is an easily machined, tough, low cost rigid thermoplastic material with high impact strength, and may be a desirable material for turning, drilling, milling, sawing, die-cutting, shearing, etc. Virgin ABS may be mixed with a plastic regrind of ABS or another lightweight, durable plastic material. ABS is merely an example material, equivalent materials may include various thermoplastic and thermoset materials, such as talc-filled polypropylene, high strength polycarbonates such as GE Lexan®, or blended plastics.

There are many known injection molding machines for forming plastic injection molds, other plastic molding processes such as vacuum forming may be used. Alternatively, handle **105**, nut **110** and/or components of the subassembly **200** may be formed using a metal casting process such as sand casting, die casting, or investment casting, for example.

The handle **105** and nut **110** may include a rubber over mold, shown generally at **107** and **111**. The rubber over molds **107**, **111** provide an ergonomic design for the palm and fingers of a user's hand to enable the user to easily grip the handle **105** and/or manipulate nut **110** and provide better force for both genders to effectively clean golf clubs and/or golf shoes with bristles **222**, **224** of the brush **220** of the groove cleaner **235** of the scraper block **230**.

Unlike conventional golf club cleaning devices, the club cleaning subassembly **200** and constituent components of the subassembly are removable. As shown best in FIG. **1**B, the subassembly **200** includes a male connector **210** that is designed for a 'snap-fit' within nut **110**. As best shown in FIG. **1**A, nut **110** has a central bore **113** there through that includes a pair of interior rib portions **112** on sides thereof which are adapted so that nut **110** can snap fit to handle **105**. Handle **105** includes a female connector **120**. Female connector **120** includes a channel **122** formed between projections **124**. Each

projection **124** includes a corresponding lip or bumper **127**. The nut **110** is snap fit onto handle **105** so that the lips **127** extend into bore **113** and fit over its corresponding interior rib portion **112** within nut **110**. Then, the subassembly **200** may be slid into nut **110**, within channel **122** of female connector **120** adapted to receive a distal T-shaped end **212** of the male connector **210** therein. As will be explained below, nut **110** rotations in either desired direction tightens and secures subassembly **200** to nut **110** and handle **105**. This provides a twist locking and/or twist tightening feature.

Referring to FIG. **1**A, channel **122** is open at one end arid terminates at a keyway **126** within a cylinder portion **125** which abuts with and/or is connected to handle **105**. With the handle **105** attached to nut **110**, keyway **126** receives the T-shaped end **212** of the male connector **210** to allow nut **110** to rotate or twist. As shown in FIG. **1**A, keyway **126** is shaped so as to facilitate engagement or alignment of the male connector **210** within female connector **120** as it passes through the central opening **115** of nut **110**. Once the subassembly **200** is inserted through the nut **110** to engage the handle **105**, the nut **110** may be rotated (in a desired direction) for tightening and locking of the subassembly **200** to the handle **105**.

The bristles constituting brush **220** may include both plastic and metal bristles. As shown in FIG. **1**E for example, and in an example arrangement, the brush **220** may comprise several interior rows of metal bristles **222** surrounded by an outer ring of plastic bristles **224**. In an example, metal bristles **222** may be made a phosphorous bronze metal material, although other metal materials could be used such as various metal alloys of brass, stainless steel, nickel, copper, etc.

The example arrangement of metal bristles being surrounded by plastic bristles may facilitate cleaning of clubs and the bottom of golf shoes. Including interior metal bristles **222** with plastic bristles **224** serving as an exterior ring of the brush **220** may reduce the likelihood of bending of the metal bristles **222**, and/or serves as a buffer row of bristles to prevent bent metal bristles **222** from extending beyond the exterior of the device **100**. This may reduce the likelihood of metal bristles **222** catching on clothing items, hanging golf towel bags, and/or accidentally poking the user while in use. However, the example embodiments are not limited to the combination of plastic bristles surrounding metal bristles. In alternative example, the bristles **222**, **224** may be all plastic or all metal. In a further alternative, the diameter of the bristles may be the same or different diameters, for example.

FIG. **2**A-**2**C illustrate top, side and front views of the scraper block **220** in FIG. **1**A. Occasional reference should be made to FIGS. **1**A and **1**B. The scraper block **230** may be arranged on a top surface of the brush head **205** of subassembly **200**. As shown, scraper block **230** may fit within a channel **204** (see FIG. **1**C) formed between sidewalls **206** of the brush head **205**. As shown in FIGS. **2**A-**2**C, scraper block **230** may include a handle **231** and a front face **234** from which protrudes a groove cleaner or scraper **235**. The groove cleaner **235** may have a generally pointed or tapered end shape such as a nail to engage clubface grooves, but could also be configured in a generally flat planar dimension which fits into a groove of a clubface.

Each sidewall **206** of the brush head **205** may be provided with a bore of tapped hole, shown at **216** in the sidewall **206** of FIG. **1**B. A bore is also provided through the scraper block **230**, shown at **236** in FIG. **2**B. These tapped holes **216**, **236** align to receive a pivot spring pin **240** which secures the scraper block **230** to the brush head **205** of subassembly **200**. The pivot spring pin **240** may be embodied as a spring-loaded pin which enables the scraper block **230** to rotate from a friction-locked position in which the groove cleaner **235** is secured between the sidewalls **206** and hence not open to expose the groove cleaner **235**.

As shown in FIG. **1**C and with reference to FIG. **2**B, the scraper block **230** can be locked so that the groove cleaner **235** resides in a recess portion **213**. The scraper block **230** includes wedge portions **237** which frictionally engage protrusions **217** within channel **204**, upon user hand-closing pressure, so as to effectively place scraper block **230** in the closed or locked position.

The user pulls open scraper block **230** to overcome the friction hold at interface **237**/**217** to rotate the scraper block **230** toward the open position. Once in the open position, another pair of wedge portions (not shown) on facing interior surfaces **209** (FIG. **1**F) of sidewalls **206** frictionally engage scraper block **230** so that groove cleaner **235** can be secured in a locked-open position. Groove cleaner **235** may then be used to effectively clean out the grooves of golf clubs and/or the bottom of shoes. Once securely retracted/rotated back into the brush head **205** as shown in FIG. **1**C, the groove cleaner **235** is safely out of harm's way.

Since the subassembly **200** is replaceable, the device **100** is configurable with other component variations (e.g. all plastic bristles, all metal bristles, different groove cleaner **235** and/or scraper block **230** configuration, etc.). In addition, it would be evident to the ordinary skilled artisan to attach other types of cleaning subassemblies or components to the handle **105**, such that device **100** could be used in other areas beyond the cleaning of golf clubs and shoes.

Accordingly, the aforementioned figures illustrate a subassembly **200** of a golf equipment cleaning device **100** in which either or both of the brush head **205** or groove cleaner **235** may be replaced therein.

FIGS. **3**A-**3**C illustrated a device for cleaning golf equipment in accordance with another example embodiment. FIG. **3**A illustrates a top view, FIG. **3**B a side view and FIG. **3**C a bottom view of a device **300**.

Referring to FIGS. **3**A to **3**C, device **300** may be comprised of an elongated handle **305** which includes a generally rectangular shaped brush assembly **320** removably attached at a proximal end of the device **300** so as to contact or abut a first surface **314** at the proximal end of the device **300**. The device **300** may include a scraper block **330** that is pivotally connected at the proximal end of the handle **305** (and hence a proximal end of device **300**) above the brush assembly **320** on a second surface **316**. As shown in FIG. **3**A, the scraper block **330** is pivotable within a longitudinal channel **310**. This channel **310** is formed in an upper portion **306** of the handle **305** at the proximal end of handle **305**/device **300**, as shown in FIGS. **3**A and **3**B, and secured to the upper portion **306** by a pivot spring pin **315**. The pivot spring pin **315** is oriented transverse to the rotation of the scraper block **330** within the channel **310** to connect the scraper block **330** to the handle **305**. As shown in FIG. **3**A, the pivot spring pin **315** fits through bores **311** in the sides of the device **300** that are aligned with an opening or bore through the scraper block **330** (not shown). Although scraper block **330** rotation within the longitudinal channel **310** between closed and open positions is described in further detail hereafter, each of FIGS. **3**A-**3**C illustrate the scraper block **330** in a fully-extended outward position exposing a scraper or groove cleaner **335**.

The handle **305** is comprised of two halves **307** and **309** and may include an eyelet **308** in one of the halves, here shown as half **309** in FIG. **3**A. The eyelet **308**, as described in the previous example embodiment of FIGS. **1**A-**2**C, may be connected to any of the aforementioned retractor mechanisms, such as those having a carabineer, retractable reel and ring arrangement or the example mechanism **810** as described in

FIG. **8** to allow usage of the device **300** by pulling the device away from the retractor mechanism on an external article such as a golf bag, for example.

The handle halves **307**,**309** and constituent interior elements thereof may be formed by an injection molding process from a high impact plastic, such as ABS, or another lightweight, durable plastic material. ASS is merely an example material, equivalent materials may include various thermoplastic and thermoset materials, such as talc-filled polypropylene, high strength polycarbonates such as GE Lexan®, or blended plastics.

The handle **305** may include a rubber over mold insert on each handle half **307**, **309**, shown generally at **312**. The rubber over mold inserts **312** provide an ergonomic design for the palm and fingers of a user's hand to enable the user to more easily grip the handle **305** to effectively clean golf equipment with bristles **322**, **324** (FIG. **3**C) of the brush assembly **320** and/or with the groove cleaner **335** of the scraper block **330**. In an example, product identification such as the product name and/or manufacturer information may be stamped or formed on the inserts **312**.

As shown in FIG. **3**C, there are different bristles **322** and **324** of the brush assembly **320**. FIG. **3**C also illustrates guide channel slots **363** in an underside of the device **300**. The guide channel slots **363** are configured to engage corresponding recessed channel slots **327** on the sides of the brush head **321** of brush assembly **320**, as shown generally in FIG. **3**B.

FIG. **4** is a partial exploded perspective view of a cleaning device shown in FIGS. **3**A-**3**C. Referring to FIG. **4**, the brush head **321** of the brush assembly **320** contacts a first underside surface **314** of the handle **305** as the recessed channels **327** of the brush head **321** are slidably received within corresponding guide channel slots **363** at and underside of device on handle **305**.

The brush head **321** additionally includes a tab portion **325** receivable within a slot **319** formed between the two halves **307**, **309** of handle **305**. A part of the slot **319** is shown in handle half **307** of FIG. **4**. The first surface **314** terminates at the slot **319**. The slot **319** receives the tab portion **325** as the recessed channels **327** of the brush assembly **320** slide into the guide channel slots **363**. The slot **319** therefore provides a stop for brush assembly **320** sliding movement along the first surface **314** into the proximal end of handle **305**. Further, the brush assembly **320** is therefore slidably inserted into a proximal end of the handle **305** so that the tab portion **325** is received into the slot **319**.

The brush head **321** further includes a recessed notch **323** on a top surface thereof. As will be seen in further detail hereafter, a first finger **342** of a tension element **340** is designed to protrude through an opening **313** in the first and second surfaces **314**, **316** of handle **305** so as to engage the recessed notch **323**. The tension element **340** may be made of a metal such as aluminum for example. The engagement of a downward bent tip **343** of the first finger **342** within the recessed notch **323** on the brush head **321** provides a way to secure the brush assembly **320** to the handle **305** at the proximal end of device **300**. The tension element **340** rests on the second surface **316** and engages the scraper block **330**. The first finger **342** protrudes through an opening **313** end the first and second surfaces **314** and **316** as shown in FIG. **4** to engage the recessed notch **323** on the brush head **321** of the brush assembly **320**.

FIG. **4** more clearly illustrates the pivot spring pin **315**, which is insertable (or removable) through bores **311** which are aligned with opening **333** in the scraper block **330** to secure and/or to replace the scraper block **330** in device **300**. Accordingly, the scraper block **330** is replaceable by removing the pivot spring pin **315** from the device **300**, removing the scraper block **330** from the longitudinal channel **310** and then replacing it with a new scraper block. Thereafter, the opening **333** is aligned to the bores **311** and the pivot spring pin **315** be reinserted to secure the new scraper block **330** therein.

The tension element **340** has an end part **346** which is received in the corresponding slot **317** to secure the tension element therein. A portion of slot **317** is shown in handle half **307** of FIG. **4**. The tension element **340** also includes a second finger **344**. The second finger **344** has a ramp **345** thereon which provides frictional resistance to the movement of the scraper block **330** as described in more detail below.

FIG. **5** is a partial exploded view to illustrate further detail of the scraper block **330**, tension element **340** and brush assembly **320** of device **300**. Occasional reference should be made to FIG. **4**. The handle **305** is omitted in FIG. **5**. FIG. **5** is provided to more clearly illustrate the relationship between the first finger **342** of the tension element **340** and the surface of brush head **321**. The tip **343** of the first finger **342** is adapted to extend through opening **313** (see FIG. **4**) to be received in the recessed notch **323** on the top surface of the brush head **321** of the brush assembly **320**. The ramp **345** at the end of second finger **344** acts as a counter-force element against scraper block **330** travel, during rotation of block **330** from an inwardly secured position through a 180 degree travel to a fully extended position.

In FIG. **5**, the scraper block **330** includes a handle portion **331** formed as a top surface thereof, and a scraper or groove cleaner **335** extending outward from an angled surface of block **330**. Additionally, FIG. **5** illustrates the recessed channels **327** on the sides of the brush head **321** which are received in the corresponding guide channel slots **363** at an underside of the device **300**, so that the top surface of the brush head **321** abuts the underside first surface **314** of the handle **305** as shown in FIG. **4**, for example. As best shown in FIG. **5**, the scraper block **330** has indentations **338** which mate with the ramp **345** on the second finger **344** of the tension element **340** when the scraper block **330** is in a secured inward position, or once it has been rotated 180 degrees to a full-extended outward position. This mating arrangement in which the ramp **345** is received within a given indentation **338** helps to fixedly maintain the scraper block **330** in either of the secured inward or fully-extended outward positions.

Accordingly, the tip **343** of the first finger **342** extends through the opening **313** in the first and second surfaces **314**, **316** to act as a stop for the brush assembly **320**. The engagement of tip **343** within recessed notch **323** locks the brush assembly **320** to the handle **305**'s proximal end when the scraper block **330** is in any position other than 90 degrees from the secured inward position or fully-extended outward position. The ramp **345** acts as a counter tension to scraper block **330** pivoting movement back and forth between the secured inward and fully-extended outward positions, and rests within indentations **338** (as best shown in FIG. **5**) when the scraper block **330** is in either the secured inward position or fully-extended outward position.

FIGS. **6**A and **6**B illustrate enlarged cut-away views of a portion of the scraper block **330** and brush assembly **320** so as to illustrate the relationships between the tension element **340** and scraper block **330** for a Closed position (FIG. **6**A) and a fully open position (FIG. **6**B) of the scraper block **330**. Referring to FIG. **6**A, in the fully closed or secured inward position, the scraper block **330** is oriented such that the scraper **335** and handle portion **331** are pointed toward the rear of device **300**. The tip **343** of first finger **342** is shown extending through the opening

313 and into the recessed notch 323 of the brush head 321. This exploded cutaway view further illustrates the end part 346 of the tension element 340 secured within slot 317 and more clearly illustrates that the scraper block 330 resides on a different surface 316 (which forms the top surface of tension element 340) than the underside surface 314 which abuts the removably slidable brush assembly 320.

FIG. 6B illustrates the scraper block 330 in a fully extended (open) position. Similar to the fully closed position, the brush assembly 320 may not be removed from device 300 due to the locking feature provided by the tip 343 of first finger 342 engaging the notched recess 323 of the brush head 321, although the recess 323 is not clearly shown in FIG. 6B. Therefore, the tip 343 of the first finger 342 in its bent downward position acts as a locking mechanism for the brush assembly 320. As described above, the second finger 344 with its ramp 345 acts as a counter tensioning element to the pivot spring pin 315 as the scraper block 330 pivots or rotates back and forth in a 180 degree travel between open (fully-extended outward position) and shut (secured inward position).

FIG. 6B also illustrates a depression 370 that is provided in the upper portion 306 of handle 305 (see also FIG. 38) so as to receive the handle portion 331 of the scraper block 330. Additionally, FIG. 6B best illustrates that the scraper 335 protrudes from an angled surface 337 of the scraper block 330 which is adjacent to the top surface formed as the handle portion 331.

FIG. 7 is an exploded view of a portion of the brush assembly to illustrate the brush head, metal bristles and plastic bristles. The brush head 321 includes bristle holes 328 and 329. In an example, these holes may have different diameters to accommodate different diameter bristles. In FIG. 7, exterior holes 328 around the outer circumference of the brush head 321 receive corresponding plastic bristles 324, which in an example may be nylon, although other plastic based materials may be used for bristles 324. Metal bristles 322 are received in the larger diameter holes 329 within brush head 321. These metal bristles 322 may be made of a phosphorous bronze metal material, although other metal materials could be used such as brass and/or various other metal alloys of stainless steel, nickel, copper, etc.

Accordingly, the scraper block 330 is pivotally rotatable between a closed position, in which in one example a conically-shaped, tapered metal groove cleaner 335 is secured within the handle 305, and an open position in which the groove cleaner 335 rotates 180 degrees to a fully-extended position so as to be exposed for cleaning golf equipment such as clubface grooves or golf shoes, for example. Additionally, the embodiment as described in FIGS. 3A-7 provides a device 300 in which either the brush assembly 320 or the scraper block 330 is easily replaceable.

FIG. 9 is a side view of a device for cleaning golf equipment in accordance with another example embodiment. FIG. 9 should be read with occasional reference to FIGS. 3B through 7. FIG. 9 is similar to FIG. 3C in most respects; however, in FIG. 9 there is no replaceable brush assembly 320, the brush 920 is a fixed part of the device 900. In an example, the brush 920 may be integrally formed with the handle 905.

However, the device 900 does include a replaceable, pivotable scraper block 930, which functions as substantially shown and described in FIGS. 5A and 5B, for example. A difference is that the first and second fingers 342 and 344 of a tension element (not shown here, see FIG. 5) may each have ramps 345 (and no tip 343) to provide a tensioned counterforce or friction against the pivot spring pin 915 during pivoting or rotational movement of the scraper block 330. There is thus no need for a tip 343 on the first finger 342 as the brush 920 is a fixed part of the handle of device 900. Bristles 922 may be a mixture of plastic and metal bristles of differing diameters as shown in FIG. 7. In alternative examples, bristles 922 may be all plastic or all metal bristles, for example, of the same or different diameters.

FIG. 10 is a side view of a device for cleaning golf accessories in accordance with another example embodiment. FIG. 10 should be read with occasional reference to FIGS. 3B through 7. FIG. 10 is also similar to FIG. 3B, but device 1000 does not include a replaceable scraper block, only a removable or replaceable brush assembly 1020, the configuration of which is similar as shown and described in FIGS. 3B, 4 and 5. Accordingly, the replaceable brush assembly 1020 includes a generally rectangular brush head 1021 with a pair recessed channels 1027 formed along sides thereof. The channels 1027 may be slidably inserted into corresponding channel guide slots (not shown) such as the guide channel slots 363 shown in FIG. 4 at the proximal end of the device 1000.

The brush assembly 1020 in FIG. 10 may be held in place within the handle 1005 of device 1000 due to friction between surfaces of the recessed channels which contact the guide channel slots on the underside of the device 1000, such as is shown in FIG. 4, for example. In this embodiment, the friction engagement between surfaces of the recessed channels 1027 and guide channel slots (such as slots 363) serve as a means of securing the brush head assembly 1020 to the handle 1005 of device 1000; therefore no tension element 340 is used in this embodiment. In other words, there is frictional resistance between the surfaces as the recessed channels 1027 engage the channel guide slots as the brush head assembly 1020 is inserted into the handle 1005 (or removed there from) so as to fixedly secure the brush head assembly 1020 to the handle 1005.

Bristles 1022 may be a mixture of plastic and metal bristles of differing diameters as shown in FIG. 7. In alternative examples, bristles 1022 may be all plastic or all metal bristles, for example, of the same or different diameters.

FIG. 11A is a side view of a cleaning device in accordance with another example embodiment, and FIG. 11B is an exploded view of a portion of the device in FIG. 11A to illustrate the brush head, metal bristles and plastic bristles.

In FIGS. 11A and 11B, the device 1100 includes no removable brush assembly but rather a fixed brush 1120 attached to handle 1105. FIGS. 11A and 11B should be read with occasional reference to FIG. 7. The device 1100 includes no scraper block pivotally connected at an end thereof for rotational movement. The device 1100 of FIGS. 11A and 11B include a handle 1105 to which a bristle arrangement similar to as shown in FIG. 7 is affixed thereto or integrally molded therein, with a particular orientation of bristles extending from a brush head surface 1121 of the device 1100. In this example, a plurality of bronze phosphorus bristles 1122 may be arranged in an interior portion on the brush head surface 1121 and are received in holes 1129. These are surrounded in an outer circumference of the brush head surface 1121 by a plurality of nylon bristles 1124 receivable in holes 1128. As can be seen, the diameters of the bristles 1122, 1124 and holes 1128, 1129 are different, with the bronze phosphorus bristles 1122 and corresponding holes 1129 having a wider diameter than the nylon bristles 1124 and corresponding holes 1128. Accordingly, the bristle configuration in 118 is similar to FIG. 7 with the exception that the bristles 1122, 1124 are attached to a brush head surface 1121 of a brush 1120 that is fixed to and/or integrally formed as part of device 1100, and hence not replaceable.

The example embodiments being thus described, it will be obvious that the same may be varied in many ways. Such variations are not to be regarded as departure from the example embodiments, and all such modifications as would be obvious to one skilled in the art are intended to be included herein.

What is claimed is:

1. A device for cleaning golf equipment, comprising:

a handle,

a brush head surface formed in an underside of the handle at a proximal end thereof,

a removable groove cleaner assembly pivotally connected to the proximal end within a channel formed in a top surface of the handle at the proximal end, the groove cleaner assembly including a scraper pivotally connected to the handle and extendible outward from the handle top surface via a transverse pivot pin attached to the handle, and

a plurality of metal and plastic bristles extending downward from the brush head surface and configured so that the plastic bristles are arranged around an outer circumference of the brush head surface to encircle the metal bristles extending from a central portion of the brush head surface.

2. The device of claim **1**, wherein the diameter of the metal bristles is different from the diameter of the plastic bristles.

3. The device of claim **1**, wherein the diameter of the metal bristles is wider than the diameter of the plastic bristles.

4. The device of claim **1**, wherein the metal bristles are bronze and the plastic bristles are nylon.

5. The device of claim **1**, wherein the plurality of metal and plastic bristles are part of a brush assembly that is removable from the handle end, the brush assembly being generally rectangular and having a recessed channel along each long side thereof that is shaped to engage a corresponding guide channel slot formed along each edge of a bottom surface at the handle proximal end to slidingly engage the brush assembly to the handle.

6. The device of claim **5**, wherein

the brush assembly has a tab portion at an end thereof, and

the bottom surface at the handle proximal end terminates at a slot that is to receive the tab portion as the brush assembly slides into the guide channel slots, the slot providing a stop for brush assembly sliding movement onto the bottom surface.

7. The device of claim **1**, wherein the scraper is pivotally rotatable via the pivot pin between a closed position, in which the scraper is secured within the channel, and an open position in which the scraper rotates up to 180 degrees to a fully-extended position.

8. The device of claim **1**, wherein the groove cleaner assembly is positioned directly above the brush head surface at the handle proximal end.

9. A device for cleaning golf equipment, comprising:

a handle having a proximal and distal end,

a scraper pivotally attached to the handle proximate end on a top surface thereof by a pivot pin that is transverse thereto and connected to the handle, the scraper pivotally rotatable via the pivot pin between a closed position, in which the scraper is secured within a channel formed in the handle top surface, and an open position in which the scraper rotates up to 180 degrees to a fully-extended position, and

a plurality of metal and plastic bristles extending downward from a bottom surface of the handle at the proximal end and configured so that the plastic bristles are arranged around an outer circumference of the bottom surface to encircle the metal bristles extending from a central portion of the bottom surface of the handle.

10. The device of claim **9**, wherein the diameter of the metal bristles is different from the diameter of the plastic bristles.

11. The device of claim **9**, wherein the diameter of the metal bristles is wider than the diameter of the plastic bristles.

12. The device of claim **9**, wherein the metal bristles are bronze and the plastic bristles are nylon.

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